

ABSTRACT

A method and apparatus for the manufacture of thin film magnetic transducers using a compliant pad or mat or surface in a lapping process is disclosed. The lapping process is applied to heads to eliminate both ductile element connections between the MR and shields and poletip and shield protrusion. A lapping media is dispensed onto an interface surface of a compliant pad. Then, the interface surface is engaged to the surface of a head outside a region comprising transducers defining a head gap. The pad is then moved over the head in a direction parallel to the head gap while using a head rail to guide the pad. The soft, compliant pad conforms to the head rail to ensure parallel movement. The pad is typically not stopped at the elements, but rather moves from one end of the head to the other to prevent bridging and damage that might occur during start/stop on the delicate elements. The lapping media contains a combination of chemical and mechanical agents, wherein the chemical etchants are specifically adjusted to give a desired head profile for the poletips. The chemical etchants are formed by adding dilute acid, for example, to the conventional lapping media used at the interface surface. The added etchant selectively removes iron containing poles to advance the poletips below a surrounding insulator layer. Moving of the compliant pad causes the mechanical etchants to eliminate element bridges and smears between the MR element and shields.